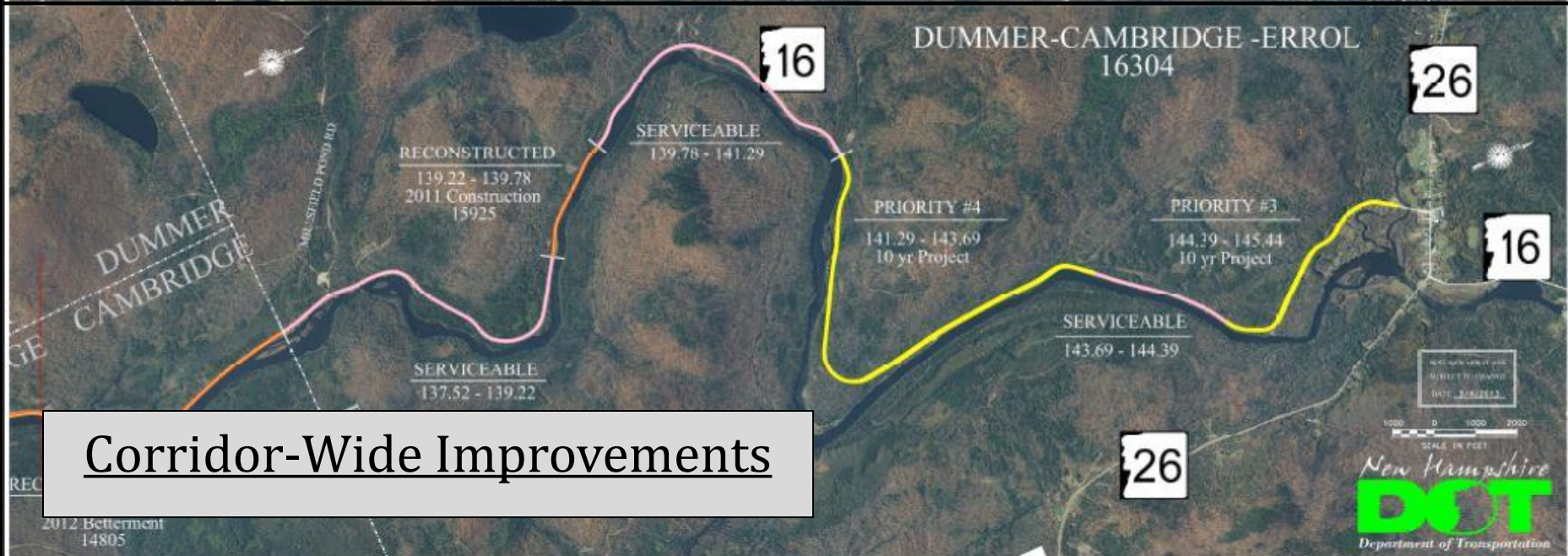




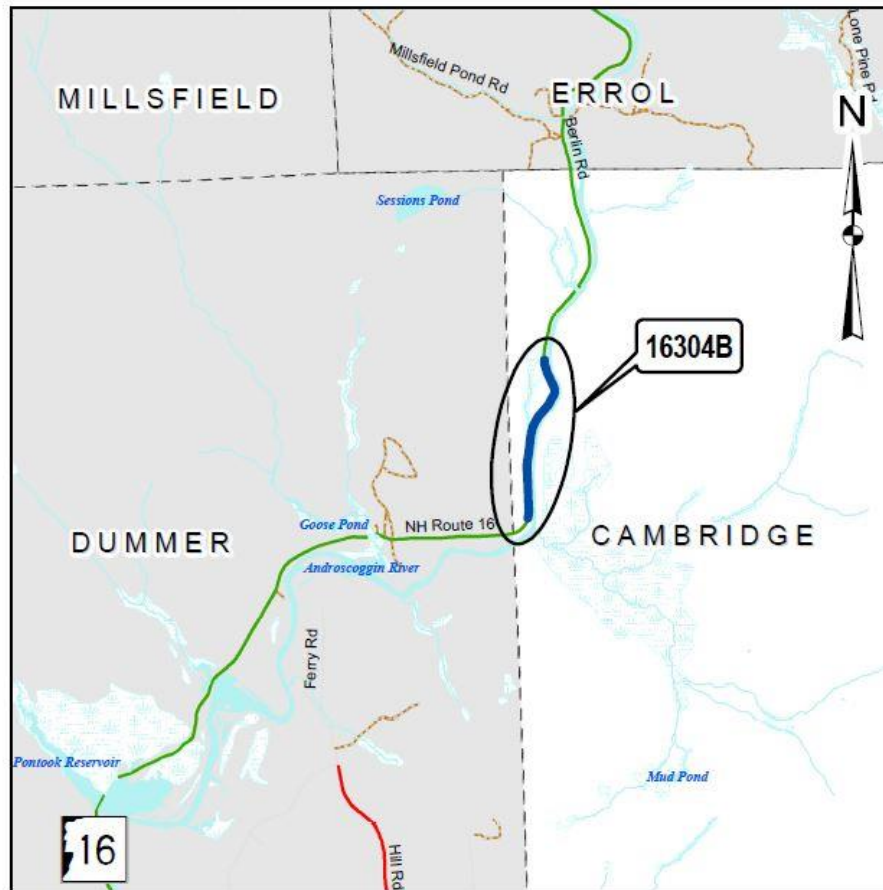
Dummer-Cambridge-Errol 16304B

16304B - Ad Date (10/2021)



Corridor-Wide Improvements

DUMMER-CAMBRIDGE-ERROL - ROUTE 16



1 1/2 0 1 2 Miles

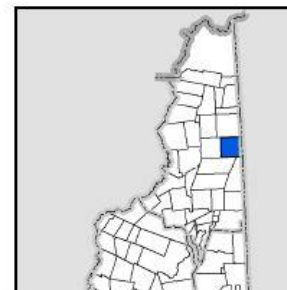
LEGEND

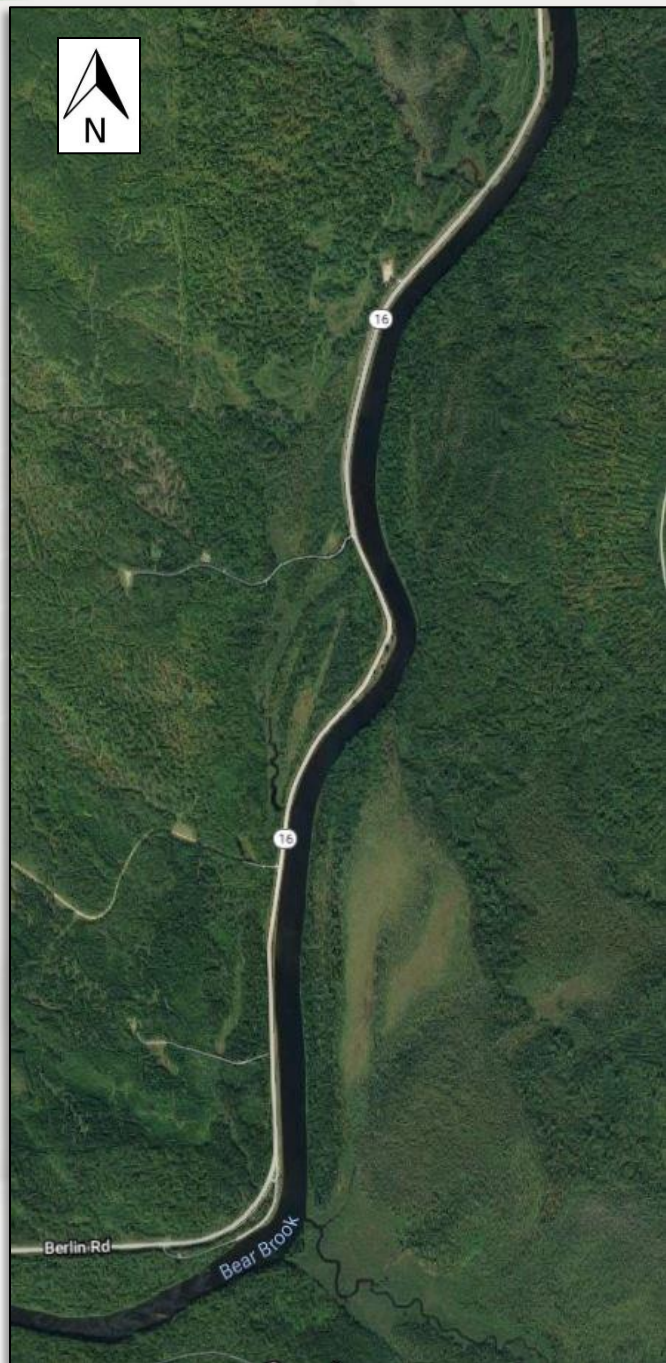
- Streams
- Water Bodies
- US Routes
- State Routes
- Interstates
- Local Roads
- Town Boundary

New Hampshire
DOT
Department of Transportation

State #: 16304B
Federal #: X-A004 (699)

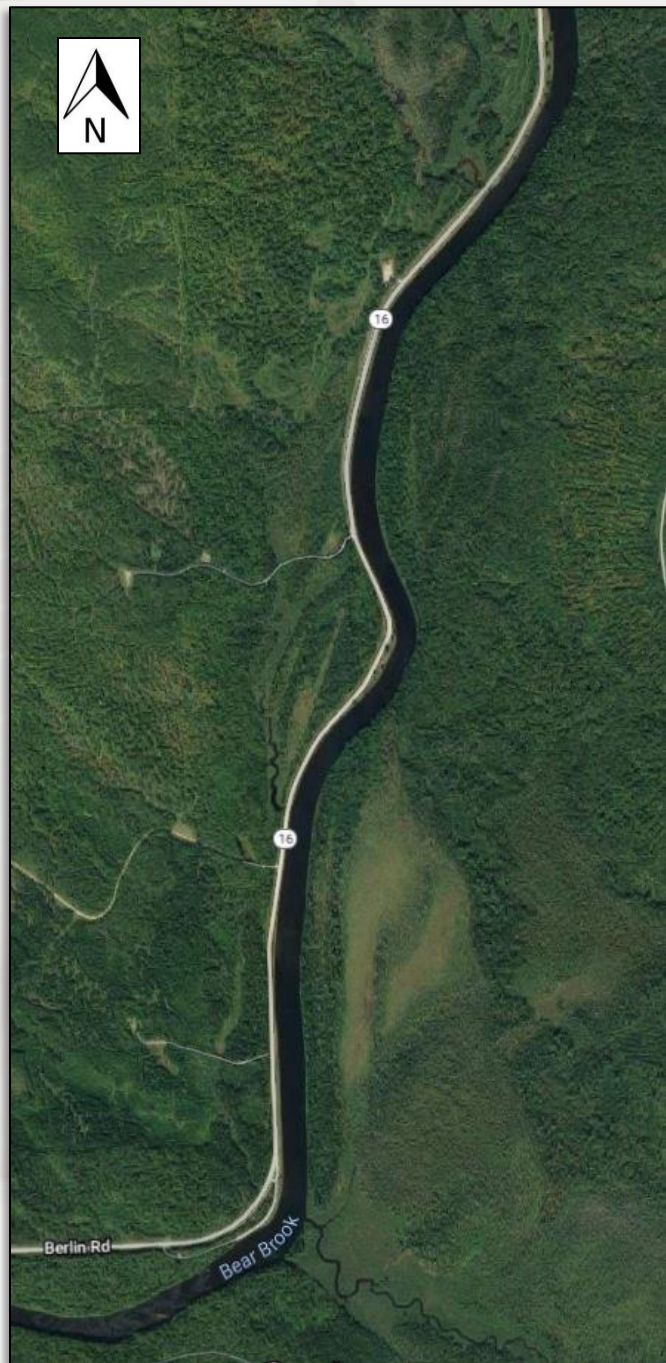
LOCATION MAP





NH Route 16 - Existing

- Minor Rural Arterial (Class I Highway)
- Posted speed: 50mph
- 1,240 ADT (2018) – 14% trucks
- Current Typical: 11-12' travel lanes, 1-2' shoulders
- CAROW - 75' Offset
- Scenic easement – 11.4 miles, 125' from CAROW to west, to edge of river to the east



16304B – Project Purpose

The purpose of the project is to address the poor condition of the pavement and road base and provide a sustainable roadway that maintains the connectivity of the corridor, minimizes long-term maintenance and risk resulting from the proximity of the Androscoggin River, and preserves the scenic quality of the surrounding area.

16304B – Project Need

1. Maintaining NH16 as a safe, reliable, continuous corridor is essential to this region of the State.
2. Pavement is in poor condition. This section of road was never formally constructed and has no structural base. Influence of river on road bed leads to severe frost heaving.
3. Due to poor condition of road, DOT posts seasonal weight restrictions for approximately 2 months of every year, requiring lengthy detours for trucks.
4. Slopes in this area have history of instability. Evidence of slope instability has been observed within project area.



16304B – Design Constraints

1. Maintenance of traffic during construction
2. Resources throughout entire project area: wetlands, river, floodplain, conservation land
3. Limited areas for stormwater treatment
4. Aesthetic concerns due to scenic easement



Existing Conditions



Typical Roadway Section

Existing Conditions



Typical Bank Section

Resources

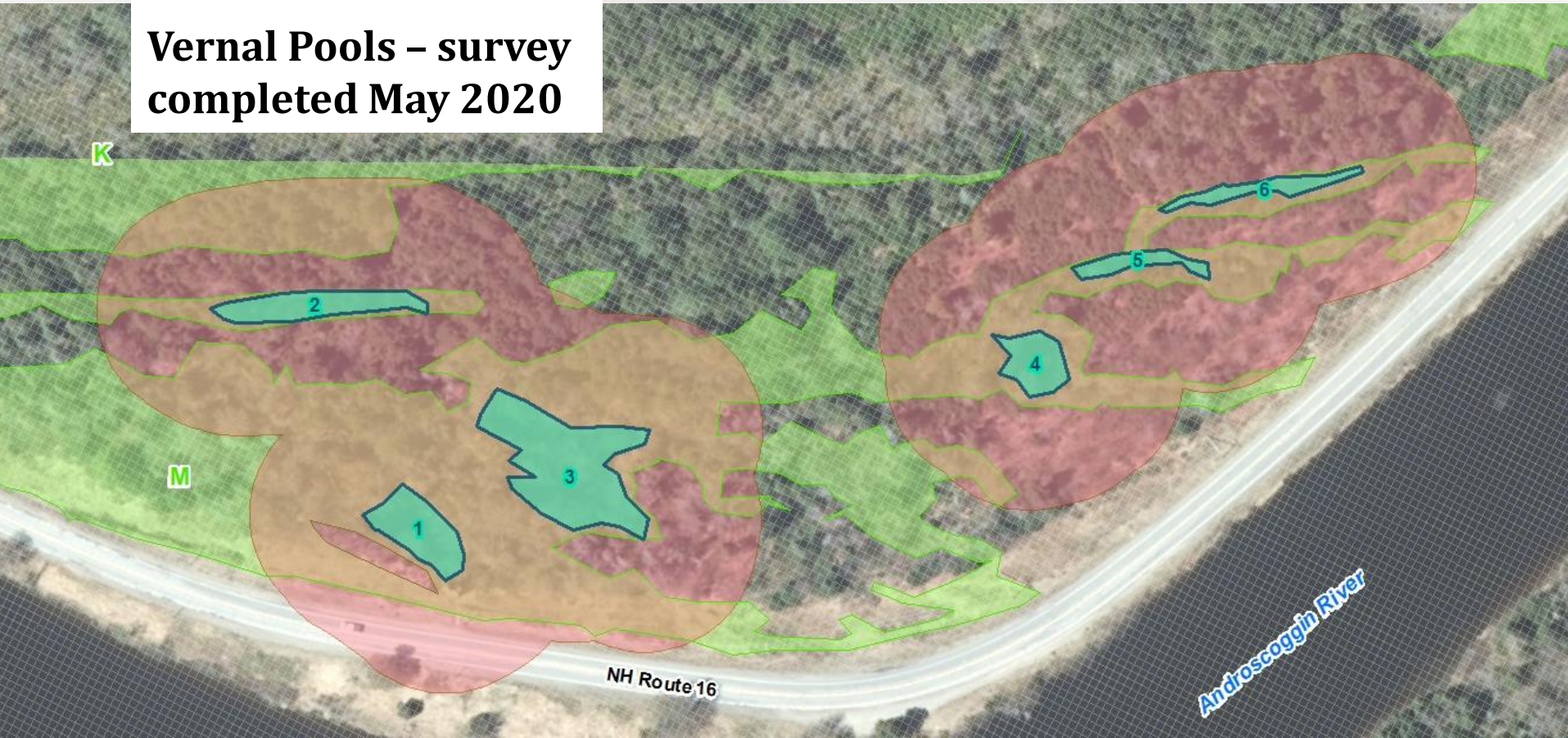
Wetlands and Surface Waters

- Extensive wetlands to west
- Androscoggin River to east
- Tributaries:
 - Tier 2 crossings (1)
 - Tier 1 crossing (1)
- Floodway/100-Yr floodplain
- Protected Shoreland
- **Vernal Pools**





**Vernal Pools – survey
completed May 2020**



Resources

Species of Concern

- State listed plant on other side of river
- NHFG: Wild brook trout, slimy sculpin are likely in tributaries
- Within the range of federally listed species: northern long-eared bat, Canada lynx

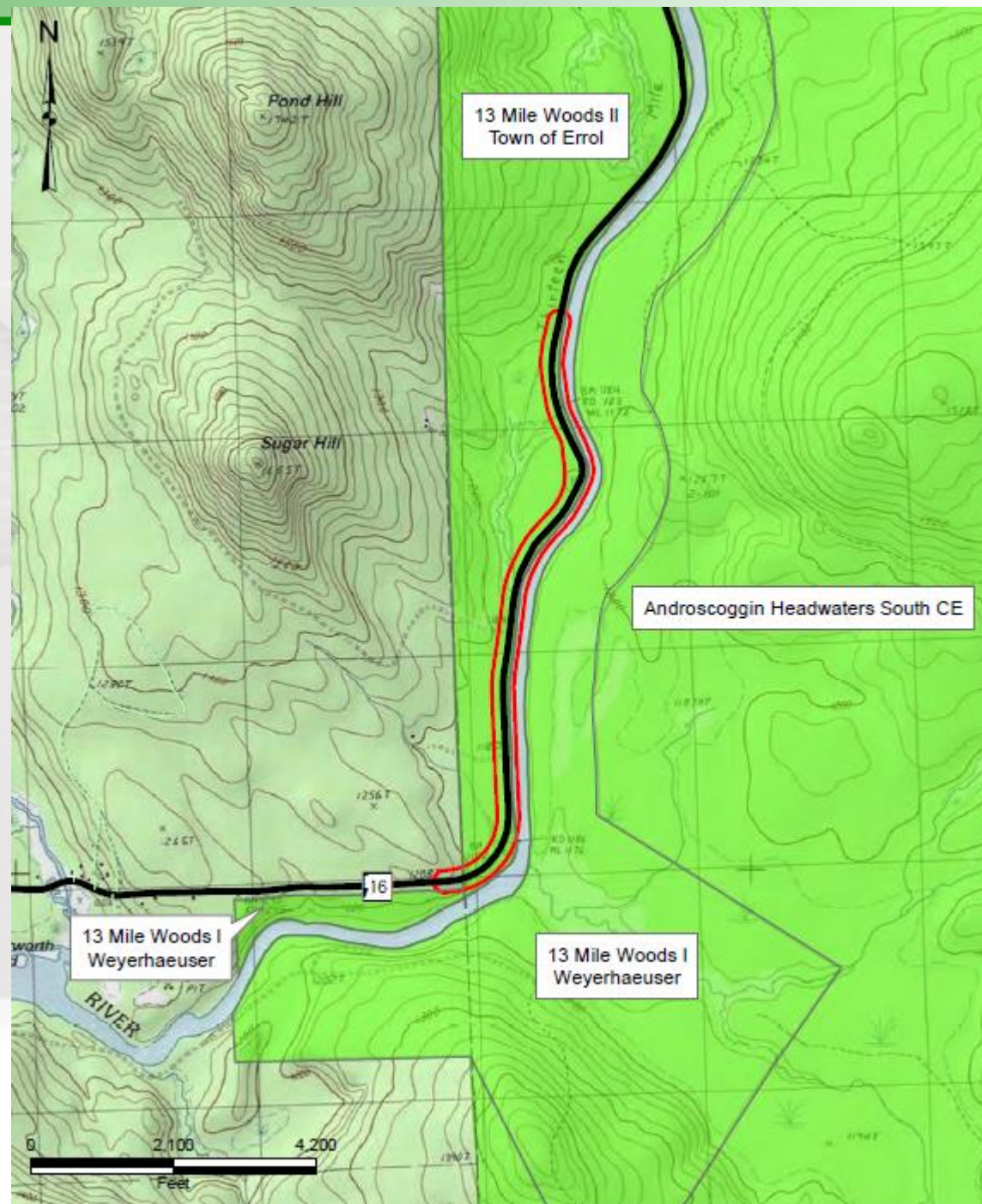


Resources

Conservation Lands

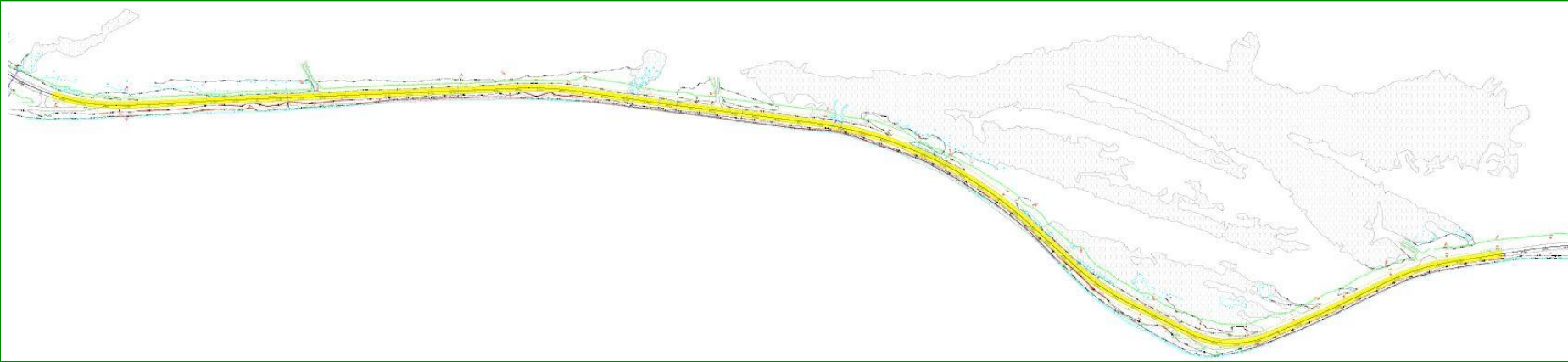
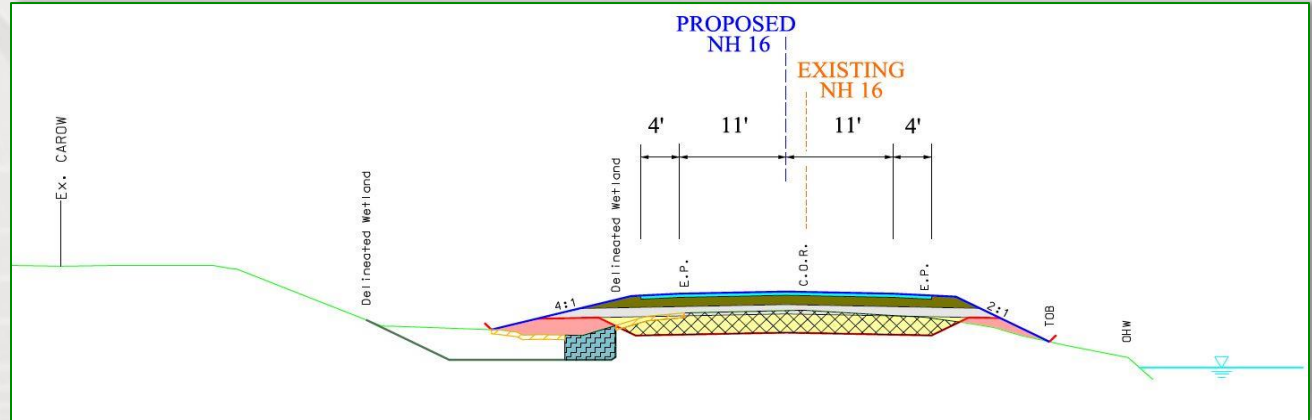
13 Mile Woods Community Forest

- 7,100 ac multi-use forest
- LCHIP and Forest Legacy Grants
- Owned and managed by Town of Errol



NH Route 16 Alternatives – Online Alignment

11-4 TYP
2:1 - 6:1 SLOPES
GUARDRAIL- 2500 FT



BENEFITS

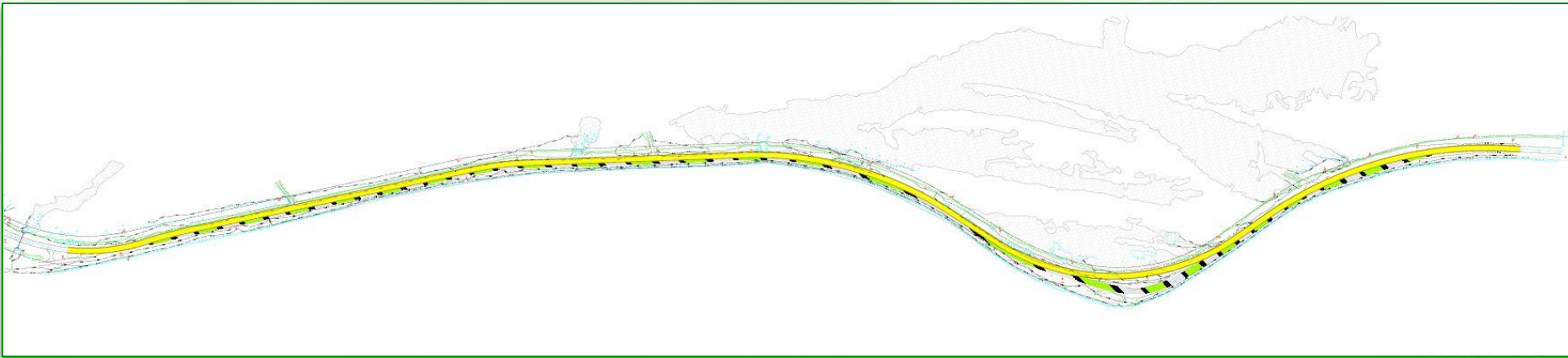
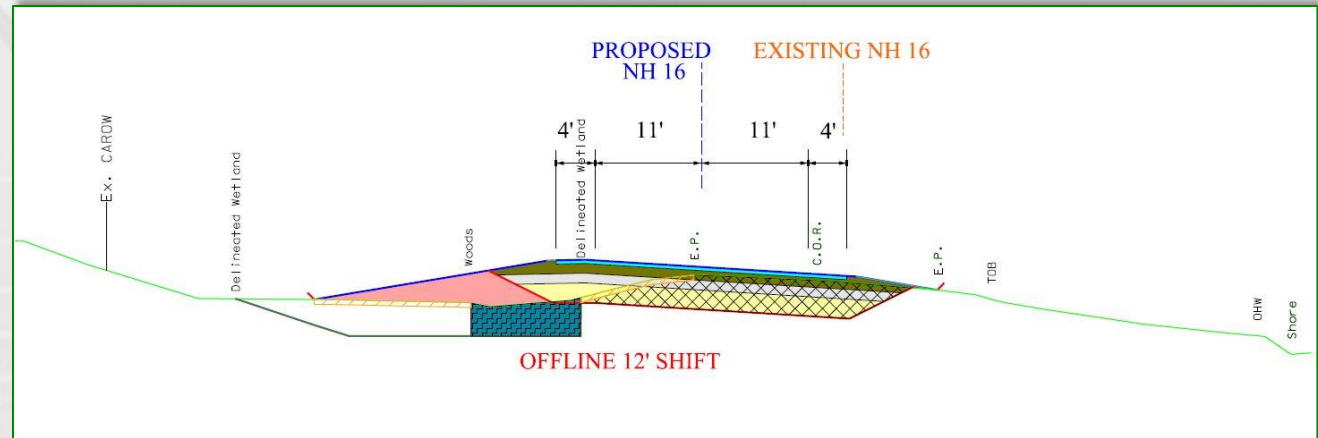
MINIMAL MUCK EXCAVATION

CONCERNS

LIMITED BOX W/ CROSS DRAINAGE ONLY
AOT NOT MET - NO TREATMENT POSSIBLE
BANK STABILIZATION NEEDED
FLOODWAY IMPACT
FUTURE ROADWAY IMPROVEMENTS MAY BE NEEDED
MAJOR TRAFFIC CONTROL ISSUES

NH Route 16 Alternatives – Shift Alignment

11-4 TYP
2:1 - 6:1 SLOPES
MINIMAL GUARDRAIL-500 FT



BENEFITS

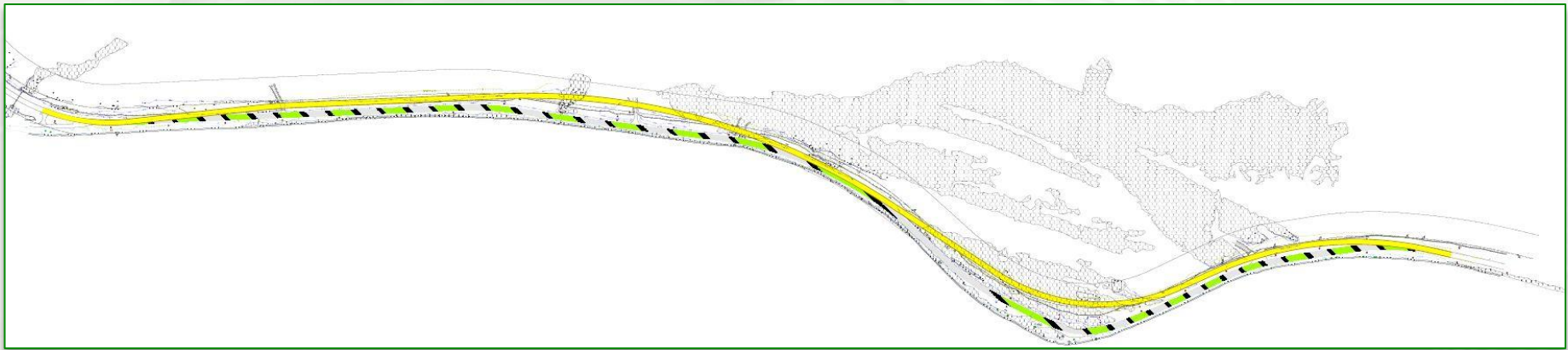
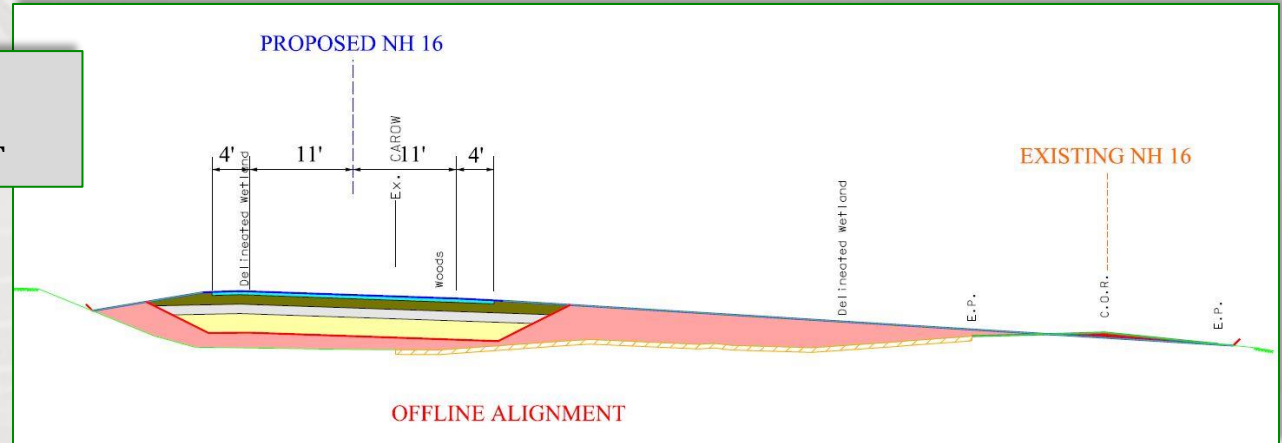
FULL BOX W/LIMITED DRAINAGE
MINIMAL MUCK EXCAVATION

CONCERNS

AOT NOT MET - NO TREATMENT POSSIBLE
FUTURE BANK STABILIZATION MAY BE NEEDED
POTENTIAL FLOODWAY IMPACT
TRAFFIC CONTROL ISSUES

NH Route 16 Alternatives – Offline Alignment

11-4 TYP
4:1 - 6:1 SLOPES (OR Flatter)
MINIMAL GUARDRAIL-500 FT



BENEFITS

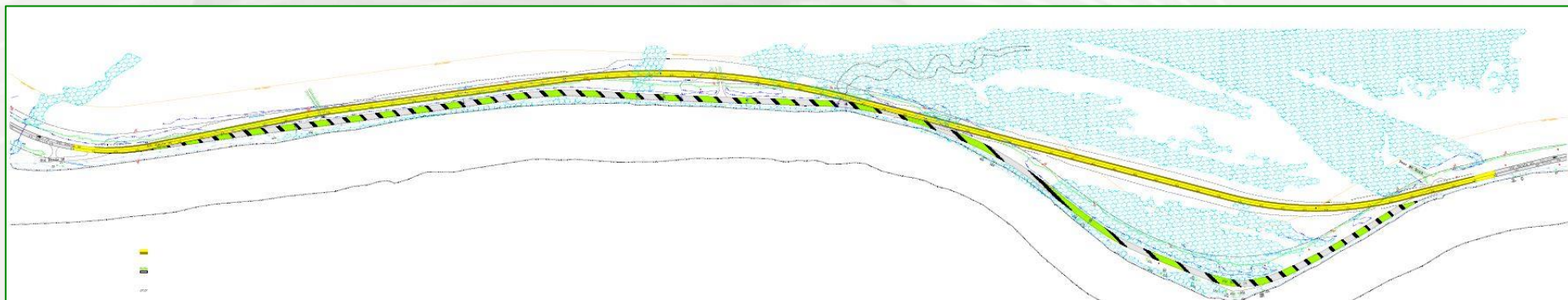
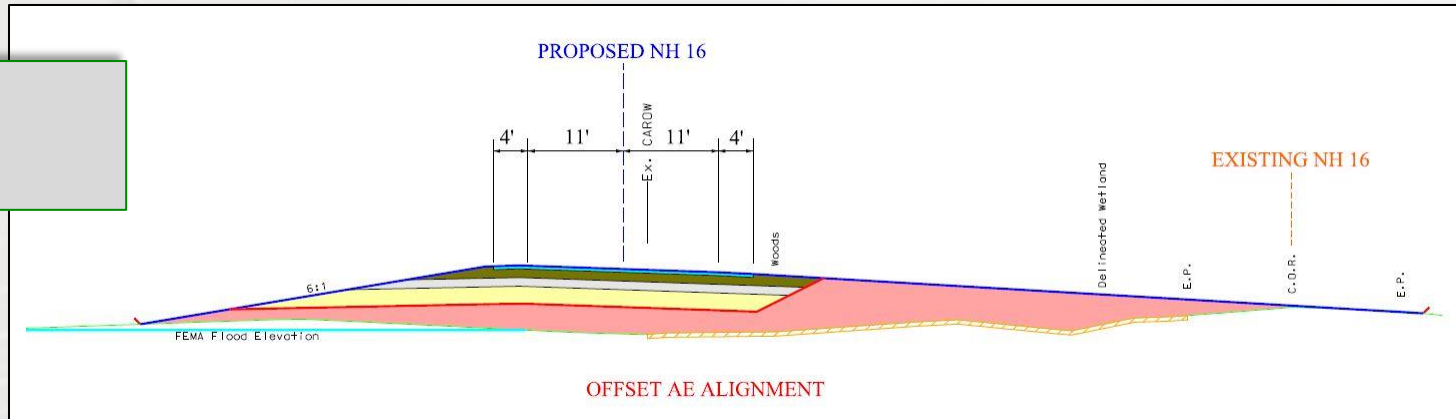
NO RIVER IMPACT
FULL BOX W/DRAINAGE
AOT MET
ROAD MOVED BEYOND INFLUENCE OF RIVER

CONCERNS

MUCK EXCAVATION REQUIRED
MINOR TRAFFIC CONTROL

16304B Alternatives – Offline Variation

11-4 TYP
4:1 - 6:1 SLOPES (OR Flat)
NO GUARDRAIL



BENEFITS

NO RIVER IMPACT
FULL BOX W/ DRAINAGE
ROAD MOVED BYEOND INFLUENCE OF RIVER
AOT MET

CONCERNS

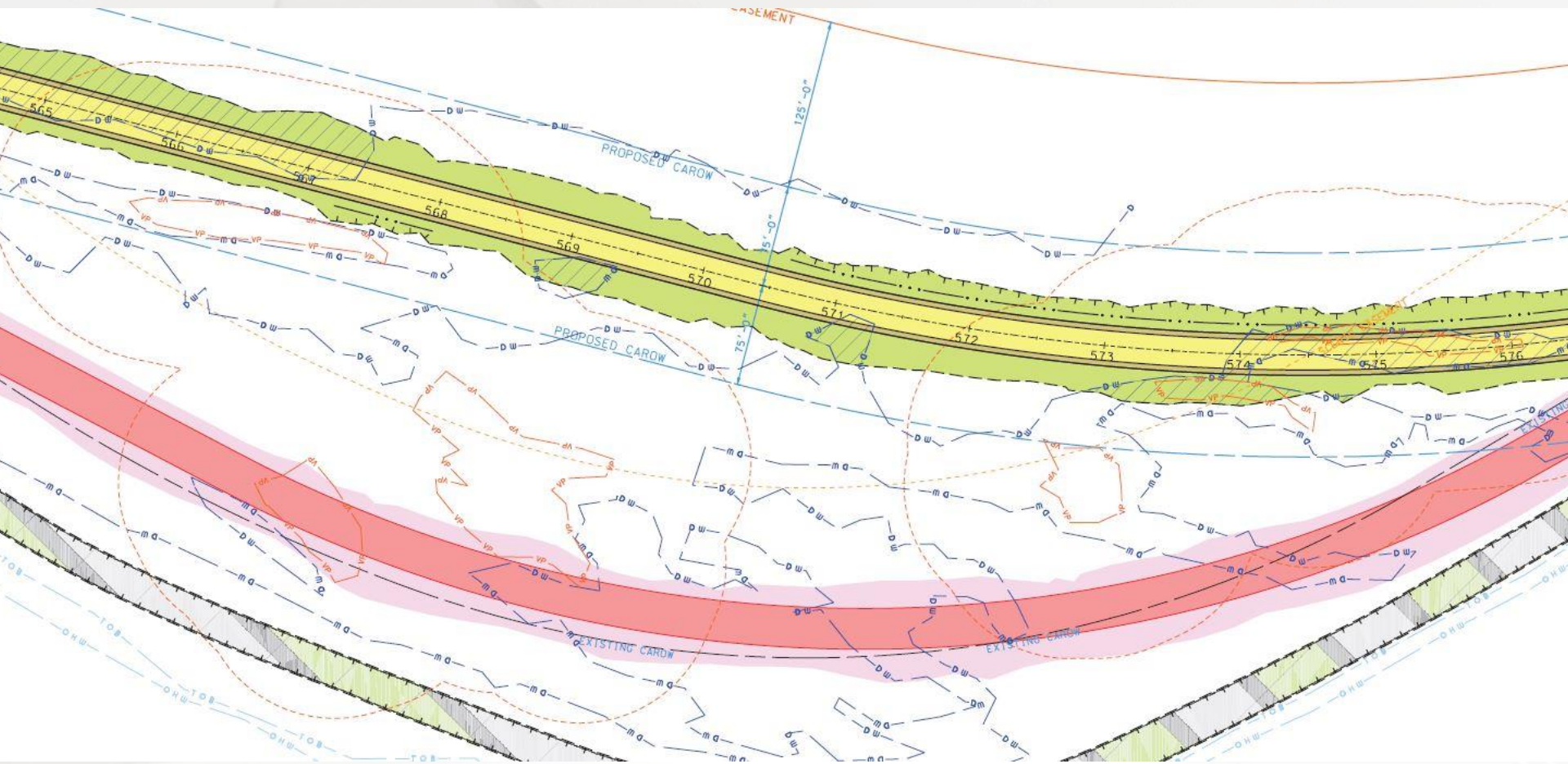
MINOR EXCAVATION REQUIRED
MINOR TRAFFIC CONTROL REQUIRED

NH Route 16 Alternatives - Summary

PRELIMINARY

	Offline Variation	Offline	Lane Shift	Online
River	No impact	241 LF Bank	971 LF Bank 899 LF Channel	6190 LF Bank 4667 LF Channel
Wetlands and Tributaries	5.26 ac (634 LF)	6.13 ac (643 LF)	2.43 ac	1.20 ac
Floodplain	1920 CY	4450 CY	2560 CY	2970 CY
Floodway	No impact	No impact	Impact	Impact
13 Mile Woods	11 - 12 ac	9.7 ac	None	None

Offline Alternatives – Vernal Pools



NH Route 16 Alternatives - Summary

See **16304B Regulatory Summary 06052020.pdf**

Dummer-Cambridge-Errol 16304B NH 16 Alternative Matrix - Summary of Regulatory Requirements						
Project Purpose and Need: The purpose of the project is to address the poor condition of the pavement and road base and provide a sustainable roadway that maintains the connectivity of the corridor, minimizes long-term maintenance and risk resulting from the proximity of the Androscoggin River, and preserves the scenic quality of the surrounding area. It is needed because the NH 16 is in poor condition and frost heaves impede the winter maintenance activities. Additionally, slope stabilization is needed to maintain the integrity of the existing roadway in its current location.						6/5/2020
REGULATORY AGENCY/PERMIT	TRIGGER	TYPICAL COMPLIANCE MEASURES	ONLINE	PARTIAL SHIFT	FULL SHIFT	FULL SHIFT VARIATION
FEDERAL HIGHWAY ADMINISTRATION - NEPA CONCURRENCE	USE OF FEDERAL FUNDS	MUST DEMONSTRATE COMPLIANCE WITH PROJECT'S PURPOSE AND NEED AND OTHER STATE AND FEDERAL ENVIRONMENTAL REGULATIONS	NOT MET	PARTIALLY MET	FULLY MET	FULLY MET
NHDES WETLANDS BUREAU - STANDARD DREDGE AND FILL PERMIT AND STREAM CROSSING RULES	IMPACTS TO JURISDICTIONAL WETLANDS, INCLUDING RIVER BANKS BELOW TOP OF BANK	MITIGATION THROUGH CONSERVATION/CREATION OF WETLANDS, IMPROVEMENT OF STREAM PASSAGES OR PAYMENT INTO THE ARM FUND	REQUIRED 1.8 AC	REQUIRED 2.6 AC	REQUIRED 5.8 AC	REQUIRED 5.1 AC
NHDES SHORELAND PERMIT	WORK WITHIN 250' OF CERTAIN STREAMS/RIVERS	NA	REQUIRED FOR ALL ALTERNATIVES - NO CONCERNS			
NHDES ALTERATION OF TERRAIN PERMIT	WHEN AN AREA OVER 1 AC IS DISTURBED	STORMWATER TREATMENT FOR TWICE THE INCREASE IN IMPERVIOUS AREA	NO TREATMENT POSSIBLE	NO TREATMENT POSSIBLE	FULL TREATMENT	FULL TREATMENT
US ARMY CORPS OF ENGINEERS - INDIVIDUAL PERMIT	AT THEIR DISCRETION, GENERALLY WHEN WETLAND IMPACTS EXCEED 3 ACRES	WATER QUALITY CERTIFICATION MUST BE OBTAINED	NOT REQUIRED	MAY BE REQUIRED	REQUIRED	REQUIRED
NHDES WATER QUALITY CERTIFICATION	REQUIRED WITH USACOE INDIVIDUAL PERMIT	MUST DEMONSTRATE THAT THERE IS NO INCREASE IN CERTAIN POLLUTANT RUNOFF, ACHIEVED THROUGH THE USE OF STORMWATER TREATMENT BMPS	NOT REQUIRED	MAY BE REQUIRED - CONDITIONS CANNOT BE ACHIEVED	REQUIREMENTS ACHIEVED	REQUIREMENTS ACHIEVED

NH Route 16 Alternatives - Summary

See **16304B Regulatory Summary 06052020.pdf**

US ARMY CORPS OF ENGINEERS - FLOOD STORAGE	WHEN FILL IS PLACED IN A FLOODPLAIN OR FLOODWAY	COMPENSATORY FLOOD STORAGE MUST BE PROVIDED, TYPICALLY BY REMOVING FILL ELSEWHERE IN THE FLOODPLAIN	REQUIRED 2970 CY NO PLACE TO REMOVE FILL	REQUIRED 2560 CY NO PLACE TO REMOVE FILL	REQUIRED 4450 CY MAY BE DIFFICULT TO ACHIEVE	REQUIRED 1920 CY CAN BE ACHIEVED
FEMA - COMPLIANCE WITH FLOODPLAIN REQUIREMENTS	WHEN FILL IS PLACED IN FLOODWAY	MUST DEMONSTRATE THAT THERE WILL BE NO INCREASE IN FLOOD ELEVATIONS DUE TO PLACEMENT OF FILL	IMPACTED	IMPACTED	NO IMPACT	NO IMPACT
LCHIP AND FOREST LEGACY APPROVAL	WHEN PROPERTY ON WHICH LCHIP OR THE FOREST LEGACY PROGRAM HOLDS AN INTEREST IS IMPACTED	MITIGATION THROUGH MONETARY OR LAND CONTRIBUTIONS	NO IMPACT	NO IMPACT	IMPACTED 9.7 ACRES	IMPACTED 11 to 12 ACRES
EPA - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM CONSTRUCTION GENERAL PERMIT (NPDES CGP)	WHEN AN AREA OVER 1 AC IS DISTURBED	FILE NOTICE OF INTENT (NOI) TO DISCHARGE STORMWATER AND PREPARE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP)	REQUIRED FOR ALL ALTERNATIVES - NO CONCERNS			
NHDOT TRAFFIC CONTROL COMMITTEE	REVIEWS ALL PROJECTS TO ENSURE TRANSPORTATION NETWORK IS MAINTAINED		CONCERNS ABOUT ABILITY TO MAINTAIN ANY TRAFFIC	CONCERN WITH ONLY MAINTAINING 1 LANE OF TRAFFIC FOR EXTENDED PERIOD	NO CONCERNS	NO CONCERNS
COST (INCLUDING ANTICIPATED ARM FUND PAYMENT)			\$8.1 MILLION	\$7 MILLION	\$8 MILLION	\$7.8 MILLION

MITIGATION OPTIONS

Approximate In-Lieu Fee

\$895,000

Land Preservation

NHFG: Potential opportunities in Berlin, Milan, Shelburne, Stark

TNC: Potential opportunity for conservation easement

Also seeking input from Division of Forests and Lands

SPIP

Potential culverts in the area

Schedule

NEXT STEPS

- LCHIP Board Meeting: June 2020
- Public Hearing: August 2020
- Complete NEPA: August 2020
- Final Design/Permitting: Winter 2020- Summer 2021
- Advertising Date: October 2021